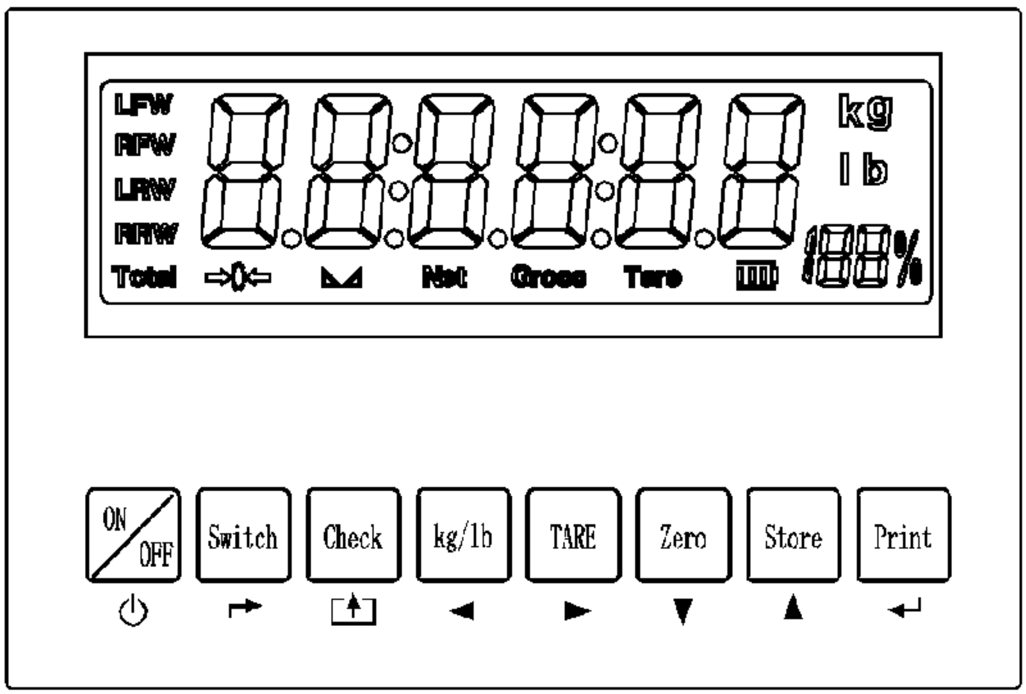
OP-903

Portable Static Weighing Indicator

User's Manual



Safety Instruction

For safety operation pls. follow the safety instruction.

WARNING
Setting. Calibration Inspection and Maintain of the indicator is prohibited by Non-professional staff.

WARNING
Pls. make sure the weighing display have good ground in using.

	WARNING
	The indicator is the static and sensitive equipment,cut off the power during electrical connections, internal components touched by hand is prohibited, and please take the measure of anti-static.

LIST

1. Product Introduction

1.1 Main Function

Portable Static Weighing Indicator OP-903 is designed for static axle scale. It can connect with 1,2,3,4 weighing pads to weigh the truck. It owns manual weighing mode and automatic weighing mode. It can be normal weighing or accumulative weighing. Varied weighing ways to meet different requirements.

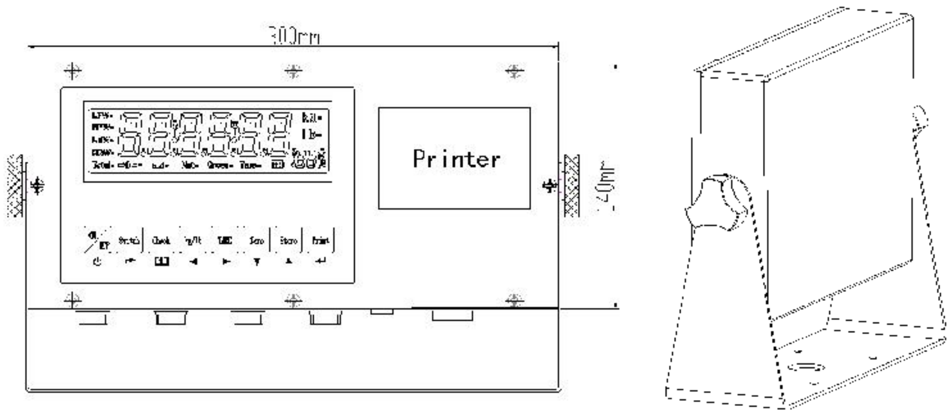
LCD display (size: 136mm x 36.5mm) show the real weight date on the weighing pad. The unit KG/LB display can be adjusted by the key on the instrument. At same time, the percentage of each pad on the total weighing is displayed too. Other function includes tare, zero, print, save, check, delete.

The power supply by 6v/4.5Ah battery and it can be recharged by 9v/1.2A adapter. Built-in needle printer, several printing formats; RS232/485 interface for large display or computer; The calendar is in the software. Date and time can be checked easily. Easy operation, high precision, good application.

1.2 Technical parameter

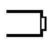
>> Sensitivity 0.5uv/d
>> Input voltage -30~30mV
>> Accuracy class III
>> Initial zero range ±10%Max
>> Manually zero range ±2% Max
>> Zero Range 100% Max
>> Zero Tracking 0.5d/s
>> Excitation circuit VDC,6 wire connection,Maximum connect 24 load cell of 350Ω
>> AC power 100~240VAC,50/60HZ
>> Operation temperature humidity -10℃ ~ +40℃,≤90%RH
>> Storage temperature -10℃ ~ +40℃

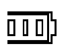
1.3 drawing



1.4 Battery instruction

1. when you use the internal battery first time,you should charge the battery fully, to prevent low voltage resulted from self leakage of battery.

2. when the “  ” is flashing, it means low battery, pls. charge it in time.

3. when  and no flashing, it means fully charged

4. if battery is not used for long time, take it out to avoid the leakage.

5. In order to keep the battery in best using condition, it is suggest that you fully discharge the battery every month, the method is that using the indicator till it is automatically power off.

2. Installation and calibration

2.1 Check

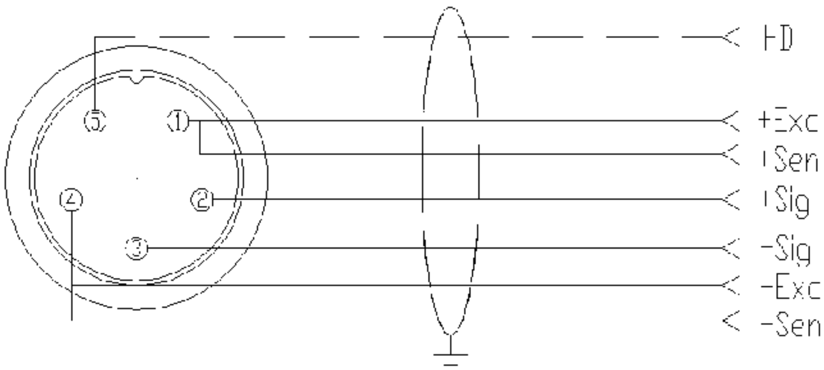
Open the box and check all items according to the packing list. If som missed or broken, please contact with our company immediately.

2.2Power supply connection

The indicator is powered by adapter, you plug the adapter directly into the “DC” pin at the back cover the indicator is ok.

2.3 Connection of load cell and indicator

The indicator can connect with 4 weighing pads or 24 pcs of load cells 350Ω at most. Quick disconnect of load cell as below.



The number of weighing pads and load cells correspond to the weighing modes. If the pads or load cells are connected at the right way, the indicator can't work. Please pay attention to the below.

Number of weighing pad	Load cell connection	Weighing mode
1	LFW	[ModE 1]Setting "1"
2	LFW,RFW	[ModE 2]Setting "2"
3	LFW,LRW,RRW	[ModE 3]Setting "3"
4	LFW,RFW,LRW,RRW	[ModE 4]Setting "4"

Normal weighing mode and accumulative weighing mode can work with the printer to print the weighing data.

Normal Weighing mode:

To set the printing format "1", the indicator is in normal weighing mode. It can connect 1/2/3/4/ pads to weigh and "Print" the weighing data and save.

Example:3 weighing pads connect with indicator to weigh the airplane.

a. The pads should connect with LFW,LRW,RRW interfaces;

b. parameter setting:working mode[ModE 3]setting "3";printing format[PF - 1]setting "1";

c. Drive the plane on the pads. Press "switch" button, indicator can display the total weight and the weight of each pad and the percentage of each pad weight from the total weight.If printing format setting"1", the weighing data can print automatically and save after stable.If printing format setting"0", the weighing data will print and save manually.

Accumulative weighing mode:

To set printing format "2", the indicator is in accumulative weighing mode. Now 2/4 pads should be connected with the indicator. And press "store" button to accumulate the axle weigh and print. Then press "printing" to print the final accumulative weight and

save.

Example:Two pads work with the indicator to weigh a truck with three axles.

a. The pads should connect with LFW,RFW interfaces;

b. Parameter setting:working mode[ModE 2] setting“2”;printing format[PF - 2]setting“2”;Axles [ALE - 3]setting“3”.

c. Drive the first axle of the truck on the weighing pads. Press ”Switch” button, indicator can display the axle weight and the each weight of the wheels and the percentage of each wheel weight from the axle weight. If printing format setting “1”, the weighing data can print and save automatically after weighing stable;If printing format setting”0”, the weighing data will print and save manually by press “ store” button.

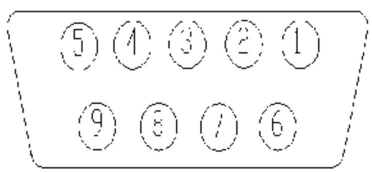
d. Drive the second axle of the truck on the weighing pads and repeat the operation same as step C, accumulate and print the second axle weight.

e. Drive the second axle of the truck on the weighing pads and repeat the operation same as step C, accumulate and print the third axle weight.

f. After finishing the weight for three axles, if printing format setting”1”, the total weight will print and save automatically; If printing format”0”, it will print manually by press ”print” button.

2.4 Communication interface

RS232 :DB9 Pin definition as below.



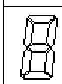
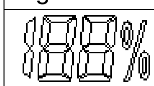
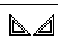
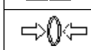
Pin function and definition as bellows:

DB9 joint	Definition	Function
2	TXD	Sending data
3	RXD	Receiving data
5	GND	Ground interface

3. Basic operation

3.1 keypad



LCD	Instruction
	Weighing data
Kg/lb	Weighing unit: kg/lb
	Percentage,show how many percentage the pad weight take on the whole weight
Tare	Tare
Gross	Gross weight
Net	Net weight
	The weighing data is stable
	Weight is zero
LFW	The weight of the left front wheel
RFW	The weight of the right front wheel
LRW	The weight of the left back wheel
RRW	The weight of the right back wheel
Total	Go to accumulation mode

Keys function

Key name	Key function
Print	1.Printing the weighing data as weighing. 2.Working with the switch button to get into the menu of calibration.
Store	In accumulative weighing mode, to accumulate the axle weight and print the weight data.

Zero	Zero the weight within tolerance
Tare	At G.W mode, get the tare weight. At N.W mode, clear the tare, get the G.W
Kg/lb	Covert between kg and lb
Check	Check and read the saved weight data to print.
Switch	Switch the weight between the pad weight and the total weight.
on/off	Press 2 seconds to power on or power off

3.2 Power on & off

Press 2 seconds to power on or power off. After power on, indicator self inspection, please check the display is normal or not, LCD light then show the voltage of the battery. Finally into weighing mode.

3.3 Zero operation

Within the tolerance, “Zero” key clear the weight on all weighing pads. When the pads unstable or loading over zero range or on tare mode, indicator can’t ZERO and show ERROR.

3.4 Tare operation

In normal weighing mode, press ”Tare” button to make the load be tare weight; In accumulative weighing mode, press “Tare” button to preset the tare weight and press “ print” button to confirm the tare weight. The lights on the keypad is showing. In Tare mode, press “Tare” button to deduct the tare weight from the total weight and show the net weight.

NOTE:Tare mode only show on the total weight display.

3.5 Unit Switch

To press “Unit” button for switching the unit between “KG” and “LB”.

3.6 Checking

Weighing mode, press “Check” button to show “C 0030” (30 records existing), input “C 0020” and press “ Print” to check 20th record. Display show “REAd-0”. Choosing”1” to show date, time, axle, tare weight and total weight one by one. Then “Print 0”, choosing “1” to print this record and back to the Checking display “C 0020”. Press “Check” Button again to quit and back to weighing mode.

3.7 Switching

Weighing mode, press “Switch” button to change the display between the axle weight and the total weight.

3.8 Printing

Manual weighing, press “print” button to print when the pad is stable.

Note:

1.Automatic accumulative weighing mode, press “Print” to print the total weight even if the number of axle don’t reach the setting number.

2.Press”store”and “print”,to add the current weight data printing.

4. Calibration and Parameter setting

4.1 Enter setting

Press “ Switch” button and “ Print” button together to enter into the menu for setting F1-F5.

The key functions in setting:

↵ ENTER

▲ UP

▼ DOWN

► LEFT

◄ RIGHT

⇪ EXIT THE MENU

4.2 Step of calibration operation

F1 menu:setting working mode, unit, decimal, graduation and span.

Step	Operation	Display	Remark
		[F 1]	F1 menu
1	press ↵	[Mode 2]	Weighing pad working mode:1/2/3/4

2	press ▲ or ▼ press ↵	[Unit-0]	Unit:0/1(kg/lb)
3	press ▲ or ▼ press ↵	[dot--2]	Point number:0/1/2/3/4
4	press ▲ or ▼ press ↵	[E - 05]	Graduation setting:1,2,5,10,20,50。
5	press ▲ or ▼ press ↵	[Full-0] [Full-1]	0:no change of max capacity 1:change the max capacity
6	press ▲ or ▼ / ► or ◄ press ↵	[0500.00] [1000.00]	Setting the max span Default division:10000, display 500.00. The max. span is 1000.00

F2 menu: Zero, loading calibration, save the calibration parameter.

Step	Operation	Display	Remark
		[F 2]	F2 menu
1	press ↵	[SCALE2]	Pad choose:calibration for the 2nd pad
2	press ▲ or ▼ press ↵ or press ↵	[CAL--0] [CAL--1] [9] [0]	Zero Calibration: 0=No need calibration 1= need calibration
3	press ▲ or ▼ press ↵ or press ↵	[SPAN-0] [SPAN-1]	0=No need loading calibration 1=loading calibration
	press ▲ or ▼ / ► or ◄ press ↵	[0100.00] [9] [0]	Loading calibration: Setting loading 100,00 an put the 100kg weight on the 2nd pad. Loading choice: load the weight as possible

			As max capacity, at least 10%
4	press ▲ or ▼ press ↵	[SAVE-0] [SAVE-1]	0=non-save the loading parameter 1=save the loading parameter

4.3 Application function parameters setting chart

Step	Operation	Display	Remark
		[F 3]	F3 menu
1	press ↵	[ALE-02]	The number of axle settings In accumulative weighing mode, the number of axle should be pre-setted.
2	press ▲ or ▼ press ↵	[SN--23]	Cargo number setting
3	press ▲ or ▼ press ↵	[PF - 1]	Printing format setting 0: No printing 1:normal printing format for normal weighing. 2:Accumulative printing format for accumulative weighing.
4	press ▲ or ▼ press ↵	[PM - 1]	Printing method 0: manual 1:automatic
5	press ▲ or ▼ press ↵	[PC - 1]	Printing coupon numbers setting 1/2/3
6	press ▲ or ▼ press ↵	[Baud-1]	Baud rating setting 0:600; 1:1200; 2:2400; 3:4800 4:9600; 5:19200; 6:38400 7:57600; 8:115200
7	press ▲ or ▼ press ↵	[CP - 1]	Communication setting 0: communication off. 1: communication format 1 for PC. 2:communication format 2 for second display(YAO HUA MODEL). 3.communication format 3 for second display(TOLEDO MODEL).

8	press ▲ or ▼ / ► or ◄ press ↵	[OFF-00] [OFF-10]	Automatic power off setting: 00: no power-off Automatic power-offer after ten min.
9	press ▲ or ▼ / ► or ◄ press ↵	[BL--00] [BL--10]	Back lit setting 00:Back lit on 10:Back lit off after ten seconds. Backlist off: in zero condition and no operation.
10	press ▲ or ▼ press ↵	[Date-0] [Date-2]	Date format. Format 0:year,month,day Format 1:month,day,year Format 2:day,month,year
11	press ▲ or ▼ / ► or ◄ press ↵	[30.07.13] [11.08.13]	Date setting: [11.08.13]
12	press ▲ or ▼ / ► or ◄ press ↵	[14:13:20] [15:17:30]	Time setting: [15:17:30]

Step	Operation	Display	Remark
		[F 4]	F4 menu
1	press ↵	[S-0560]	560 records in indicator. Max. recording is 2000 cps.
2	press ↵	[HE-1.0A]	PCB version 1.0A
3	press ↵	[SE-1.00]	Software version 1.00
4	press ↵	[LFW code]	Check the left front wheel ad code
5	press ↵	[RFW code]	Check the right front wheel ad code
6	press ↵	[LRW code]	Check the left back wheel ad code
7	press ↵	[RRW code]	Check the right back wheel ad code

Step	Operation	Display	Remark

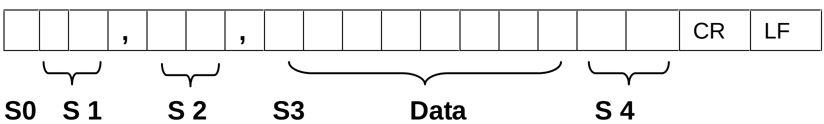
		[F 5]	F5 menu
1	press ↵	[dELA-0] [dEAl-1]	0:No deleting the weighing record. 1:Deleting the weighing record.
2	press ▲ or ▼ press ↵	[dEAL-0] [dEAL-1]	0:No deleting all the records. 1:deleting all the records.

5.Serial interface reception command

5.1 Command 1

（RS232COM serial interface can receive simple ASCII command）

RS232 parameter:9600Bit/S Baud rate,8 digits,no check point,1 stop.



S1: weight status, ST= standstill, US= not standstill, OL= overload
S2: weight mode, GS= gross mode, NT= net mode
S3: weight of positive and negative, “+” or ” –“
S4:“kg” or “lb”
Data: weight value, including decimal point
CR: carriage return
LF: line feed

5.2 Command 2

（workable with second display from Yaohua, Baud rate 600）

6.Print format

6.1 Normal Printing format

Single pad：	Double pads：	Three pads:	Four pads：
WEIGHTING REPORT	WEIGHTING REPORT	WEIGHTING REPORT	WEIGHTING REPORT

NO. : 0575
Date: 2013-11-02
Time: 09:59:04
Vehicle:
Cargo:34
LFW: 429.0kg

Net: 429.0kg
Tare:0.0kg
Gross: 429.0kg
Operator:

NO. : 0575
Date: 2013-11-02
Time: 09:59:04
Vehicle:
Cargo:34
LFW:429.0kg
RFW:413.5kg
Axle1:842.5kg

Net:842.5kg
Tare:0.0kg
Gross: 842.5kg
Operator:

NO. : 0575
Date: 2013-11-02
Time: 09:59:04
Vehicle:
Cargo:34
FW: 429.0kg
LRW: 319.0kg
RRW: 293.0kg
Axle2: 612.0kg

Net: 1041.0kg
Tare:0.0kg
Gross: 1041.0kg
Operator:

NO. : 0575
Date: 2013-11-02
Time: 09:59:04
Vehicle:
Cargo:34
LFW: 429.0kg
RFW: 413.5kg
Axle1: 842.5kg
LRW: 319.0kg
RRW: 293.0kg
Axle2: 612.0kg

Net: 1454.5kg
Tare:0.0kg
Gross: 1454.5kg
Operator:

6.2 Accumulative printing format

Double pads（Double axles）

WEIGHTING REPORT

NO. : 0594
Date: 2013-11-02
Time: 11:10:41
Vehicle:
Cargo:34
LW: 420.5kg
RW: 419.5kg
Axle01: 840.0kg
LW: 309.5kg
RW: 297.0kg
Axle02: 607.0kg

Net: 1447.0kg
Tare:0.0kg
Gross: 1447.0kg
Operater:

Four pads：(Four axles）

WEIGHTING REPORT

NO. : 0594
Date: 2013-11-02
Time: 11:10:41
Vehicle:
Cargo:34
LFW: 420.5kg
RFW: 419.5kg
Axle01: 840.0kg
LRW: 309.5kg
RRW: 297.0kg
Axle02: 607.0kg
LFW: 420.5kg
RFW: 419.5kg
Axle03: 840.0kg
LRW: 309.5kg
RRW: 297.0kg
Axle04: 607.0kg

Net: 2894.0kg

Tare:0.0kg
Gross: 2894.0kg
Operater:

7.Maintenance

7.1 Regular error and solution

ERROR	REASON	SOLUTION
UUUUUU	1.Overload 2.wrong connection with load cell 3. load cell has quality problem.	1. reduce the weight 2. check load cell connection 3. inspection load cell. Check the input and output
nnnnnnn	1.calibration is no good 2. wrong connection 3. load cell has quality problem	1. check scale is resisted or not, foot is kept level or not. 2. check load cell connection. 3. checking load cell
ERR10	Zering, not on stable weighing condition.	Zering, on stable weighing condition
ERR11	Zero and tare at same time.	Back to G.W, then Zero
ERR12	Out of the zero range	Move the extra load
ERR15	Tare, no on stable weighing condition	Tare after stable weighing
ERR16	Tare when no load	To load some, then tare
ERR17	Out of tare range	Decrease the tare weight
ERR25	The S/N number wrong when checking the weighing record	Assure the S/N number within the Number of records
ERR30	Printing format wrong at accumulative weighing mode	Printing format setting”2”
ERR31	Working mode wrong at accumulative weighing mode	Working mode setting”2/4”
ERR32	Weighing over the span Or display range or unstable or failure of	Load properly at zeroing, then printing after data stable.

	zero at accumulative weighing mode.	
ERR33	Display Error, Printing with the indicator at accumulative weighing mode.	Print the total weight after accumulating the weight of axles.
ERR34	Printing error at normal Weighing mode.	Stable then printing
ERR35	Printing format wrong at normal weighing mode.	Setting”1”

7.2 Daily maintain

1.Protect the indicator from strong sunlight to prolong the using life.

2.Good connection between load cell and indicator. Far from away from strong electric field, magnetic field.

3.Power off the indicator when lightning.

4.Power off the indicator firstly before plug and unplug.

7.3Packing list

Packing list

S/N	ITEM	NAME	UNIT	QTY	PACKING
1	Weighing indicator		PCS	1	
2	Plastic bag		PCS	1	
3	Accessories bag		PCS	1	
4	Adapter	China/DC9V	PCS	1	
		US/DC9V	PCS	1	
		UK/DC/9V	PCS	1	
		EU/DC9V	PCS	1	
		AU/DC9V	PCS	1	
		OTHERS	PCS	1	
5	USER MANUAL		PCS	1	
6	RS232	DB9 头	PCS	1	
7	LOADCELL PLUG	5 PIN Quick disconnect	PCS	4	
8	Bracket	Wall-mounted	PCS	1	
9	Certificate		PCS	1	
10	Packing list		PCS	1	